

WHAT IS CLAIMED IS:

1. A method of forming fins for a double-gate fin field effect transistor (FinFET),
comprising:

forming a second layer of semi-conducting material over a first layer of semi-conducting material;

5 forming double caps in the second layer of semi-conducting material;

forming spacers adjacent sides of each of the double caps;

forming double fins in the first layer of semi-conducting material beneath the double caps; and

thinning the double fins to produce narrow double fins.

2. The method of claim 1, wherein thinning the double fins comprises:

thermally oxidating the double fins.

3. The method of claim 1, wherein the second layer of semi-conducting material comprises Si_3N_4 .

4. The method of claim 1, wherein the first layer of semi-conducting material comprises silicon.

5. The method of claim 1, wherein each of the double caps comprises a rectangular cross-section with a width ranging from about 50 Å to about 500 Å.

6. The method of claim 1, wherein forming the spacers comprises:

depositing and etching an oxide material.

7. The method of claim 6, wherein the oxide material comprises at least one of SiO and SiO₂.
8. The method of claim 6, further comprising:
removing the spacers subsequent to thinning the double fins.
9. The method of claim 1, wherein forming the double fins comprises:
etching the first layer of semi-conducting material such that each of the double fins comprises a rectangular cross-section with a width ranging from about 50 Å to about 500 Å.
10. The method of claim 1, wherein each of the narrow double fins comprises a thickness ranging from about 100 Å to about 1000 Å.
11. The method of claim 1, wherein forming the double caps comprises:
etching the second layer of semi-conducting material.
12. The method of claim 1, further comprising:
forming the first layer of semi-conducting material over a buried oxide layer.
13. The method of claim 12, wherein forming the first layer comprises:
depositing the first layer of semi-conducting material over the buried oxide layer.
14. A method of forming fins for a double-gate fin field effect transistor (FinFET), comprising:
depositing a silicon layer over a buried oxide layer;

depositing a Si_3N_4 layer over the silicon layer;

5 etching the Si_3N_4 layer to form double caps, wherein each of the double caps comprises a rectangular cross-section with a width ranging from about 50 Å to about 500 Å;

depositing and etching an oxide material to form spacers adjacent sides of each of the double caps, wherein the oxide material comprises at least one of SiO and SiO_2 ;

etching the silicon layer to form fins beneath each of the double caps; and

10 thermally oxidating the fins to thin the fins so as to produce narrow fins, wherein each of the narrow fins comprises a thickness ranging from about 100 Å to about 1000 Å.